# Hydrogen-cooled generator inlet air temperature requirements

What is a good air temp for a generator?

For a generator,the internal inlet air temperature is typically 35-40 degrees Celsius higher than the ambient temperature. This is known as the Overdesign Temperature Rise (ODP). The generator does not require any de-rating for single-wall applications with typical cooling water temperatures of 32 degrees Celsius.

How safe is hydrogen generator cooling?

*At normal temperature range. Flammability envelope is wider at high temperature. Hydrogen has a wide flammability range. Unlike most applications involved with flammable gases,where the effort is to keep the gas below the LFL,the safety of hydrogen generator cooling is based on staying above the UFL.

Can hydrogen be used as a cooling medium for AC generators?

Using hydrogen as a cooling medium for AC generators has proven to be a safe and effectivemeans of keeping the generator cool while minimizing efficiency losses in the prime mover. Hydrogen allows us to attain the maximum generation while keeping the stator and field windings within the OEM temperature limits.

Will recirculating closed loop hydrogen cool a generator?

The cooling system for the generator needs to meet several goals, and recirculating closed loop hydrogen systems have proven to meet these challenging goals for nearly 60 years. There is every reason to expect that hydrogen cooling will continue to be the standard approach to baseload utility scale generator cooling.

How does hydrogen cooling affect generator output?

Since hydrogen cooling replaced air cooling as the industry standard,the physical size of our generators has decreased and the generator output has increaseddue to the increased cooling potential of the hydrogen gas. The density of hydrogen is only 7% of the density of normal air,which reduces torque losses due to windage.

Will hydrogen cooling be the standard approach to baseload utility scale generator cooling?

There is every reason to expect that hydrogen cooling will continue to be the standard approach to baseload utility scale generator cooling. Hydrogen has attractive characteristics as a fluid to bathe the windings of the generator, and to remove heat from the windings and deliver that heat to the cooling water.

The top layer of the middle inlet zones is subjected to cooling hydrogen, with a lower temperature of about 71°C. As the cooling hydrogen gas is continuously heated in the V-shaped air path, the temperature in the bottom ...

vice the hydrogen-cooled generators. An-other advantage of the air-cooled units is that because overhauls require less time, their availability is increased. In contrast, complicated procedures ...

air and temperature cooling requirements of generator are met, and the generator can run at full load. The reduced resistance of air cooler, ventilation loss of gener ator, and ...

The results confirmed the feasibility of a multi-chamber forward-flow cooling path for 400-MVA-class air-cooled generators. Multi-chamber forward-flow cooling path Multi ...

wedges in the inlet and outlet wind zones, the cooling gas in the air gap is sucked into the inlet wedges by the rotating rotor and enters two diagonal flowair ducts in the rotor coils, forming ...

Why is hydrogen used for generator cooling? Hydrogen has the highest thermal conductivities among gases, making it exceptionally effective at transferring heat away from hot surfaces. Furthermore, unlike many other cooling fluids, ...

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